Chap. 2. vocational education in takeoff period (part i. overview)

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Chapter——2

Vocational Education in the Takeoff Period

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In July 1894 the Meiji government established the Regulations for Apprentice Schools and began to cope full-scale with low-level technician training. This approach marked a change from handicraft training based upon the traditional apprentice system to technician training using modern scientific technology. It also revealed that modern technicians were required because the development of Japanese capitalism from the latter half of the Meiji period had reached such a high level.

The intention of the Meiji government to nurture modern technicians, however was not necessarily actualized smoothly. Since the elementary school enrollment rate in the middle of the Meiji period was at most about 50%, apprentice schools that requested elementary school completion as an admission requirement suffered from insufficient enrollment. As will be stated later, some irregular measures were taken to entice enrollment. Furthermore, a residue of the traditional apprentice system acted as a hindrance to the modernization of traditional industries by apprentice schools. In spite of this state of affairs, after much meandering, the strong determination of the Meiji government was fully pursued.

As a result of the promulgation of the Vocational School Act in February 1899, apprentice schools that used to be regarded as a type of elementary school came to be classified as technical schools. When the Regulations for Technical Schools were established in February 1899, apprentice schools began to transform themselves into technical schools in accordance with the Regulations. Furthermore, when the Vocational School Act was ultimately revised in December 1934, apprentice schools were absorbed into technical schools in name both and fact.

At the time of their establishment, even though apprentice schools

opposed the conventional apprentice system, they still contained premodern factors in their educational content and methodology. Having eliminated these factors 30 years later, however, they were able to be transformed into technical schools for the training of modern technicians.

I. The Beginning of Apprentice Schools

Prior to the nationwide establishment of apprentice schools, as a prototype the Tokyo Worker Training School and the Worker Apprentice School attached to the Tokyo College of Technology were founded in August 1881 and August 1890. (Refer to Fig. 13.4.)

1. The Tokyo Worker Training School

Because there was no observable development of industrial capital in the early Meiji period, the government, under the slogan "Increase Production and Promote Industry" aimed at accelerating capitalistic production in a protected manner through the import of modern production methods as well as a Western economic system. In the era of the school system which started from 1872 onwards, however, the government was so preoccupied with the spread of elementary schools that it was not able to cope with the promotion of vocational education. In the revised Educational Ordinance of 1880 worker training schools were placed for the first time in a legal framework in accordance with the vocational school system, and it was on this basis that the Tokyo Worker Training School was established.

A German professor, Gottfried Wagner (1831–92), recommended to the Minister of Education as early as 1874 that "industrial development must be furthered to increase the wealth of the nation," and that "for this purpose it was imperative to implement low-level technical education for the training of foremen and other technicians." This recommendation was adopted, and a manufacturing classroom was established within the Tokyo Kaisei School. The classroom was abolished, when the Kaisei School was renamed the University of Tokyo in 1877. Despite the subsequent neglect of low-level technical education, worker training was taken up again by the establishment of the Tokyo Worker Training School.

Those who graduated from either upper, four-year elementary school, or ordinary middle school were qualified to enter this school. The school's mission was to train either foremen or teachers for nationwide worker training schools. From the beginning the school assumed a leading role in Japanese technical education. This school was contin-

ually upgraded: first to the Tokyo College of Technology in 1890, then to the Tokyo Higher College of Technology in 1901, and finally, to the Tokyo Institute of Technology in 1929.

2. The Worker Apprentice School of the Tokyo College of Technology

When the Tokyo Worker Training School was transferred into the Tokyo College of Technology in 1890, a worker apprentice school was established to make a fresh start in worker training, since the Tokyo Worker Training School had moved away from the training of workers to the training of technical education leaders. According to Tejima Seiichi, the first principal of the Tokyo College of Technology, the Worker Apprentice School had the dual purpose of supplementing part of the education provided by the declining traditional apprentice system as well as the training of workers for large modern factories. He also asserted that it was necessary to establish vocational continuation schools as part-time schools for apprentices engaged in traditional industries since the education given by the Worker Apprentice School was not adequate.

Because admission to the Worker Apprentice School required graduation from upper elementary school, children of the poor who had entered apprenticehood without having been able to enter ordinary elementary school could not be admitted to the Worker Apprentice School. Those who could enter this school, or apprentice schools which were modeled after this school, were the children of families whose income did not allow them to send their children to middle school, but at least their children did not have to be apprenticed. As a result, the apprentice system continued to exist for vocational education of the children of the poor, and the kind of schools that these children could enter were part-time vocational continuation schools. Therefore, apprentice schools met the needs of industries based upon the imported factory system rather than making a contribution to the modernization of traditional industries.

II. The Increase in Production and Promotion of Industry

The Meiji government's industrial policy was aimed at the heavy industries and the textile industry. While the government set the model through the nationalized management of the heavy and textile industries, it simultaneously induced industrial development through industrial promotion exhibitions. Such new projects pursued by the Meiji

government inevitably brought about the increased issuance of non-convertible notes and bank notes, causing a depreciation of the monetary value that led to inflation. Compelled to reorganize its finances, the government implemented a tax increase in November 1880 and reduced governmental expenditure. Concurrently, the government decided upon the Regulations for the Transfer of Factories which led to the sale of state-run factories to private concerns. The government's policy of retrenchment occurred at the time of the serious depression from 1881. This accelerated a fall in prices as well as a lowering of interest rates. Banks, companies, businessmen, and industrialists went bankrupt, unemployment increased, and farmers became destitute.

To solve the problem of the depression which occurred from 1881, it was of foremost importance to decrease production costs and to improve quality. In this context opinions regarding the modernization of traditional industries emerged. Nevertheless, because Japanese capitalism had made a late start, Japan had to import industrial machinery from advanced nations; moreover, it had to export industrial products due to its limited domestic market. It was necessary to search for a remedy through export promotion policies, but because unemployment occurred extensively due to the depression and caused the establishment of a low wage system, it also became possible for Japan to compete against foreign trade. Thus, from 1882, there was a favorable balance of trade. According to the list of major export items for this period (see Table 2.1), most of the items were traditional

Table 2.1. Major Export Items, 1878–89 (¥10,000)

Year	Raw Silk	Tea	Copper	Ceramic-ware	Lacquer-ware	Matches
1878	788	428	78	16	14	2
1879	937	744	79	30	27	8
1880	860	749	42	47	44	36
1881	1,063	702	57	71	52	24
1882	1,622	702	82	57	55	3
1883	1,618	610	72	54	51	0.3
1884	1,100	581	138	52	45	0.2
1885	1,303	685	182	69	46	6
1886	1,732	722	214	100	58	37
1887	1,928	760	203	131	63	94
1888	2,591	612	350	129	58	74
1889	2,661	615	287	144	62	113

Source: Tsuchiya Takao, *Zoku nippon keizai-shi gaiyō* [A Sequel to an Outline of Japanese Economic History], Iwanami Shoten, 1939.

industrial products and were not the heavy and chemical industries products that had been encouraged by the government as its national policy since the Meiji Restoration.

Owing to the depression of 1881, the industrial capital of Japanese capitalism was gradually established. In 1890, due to the rise of stock speculation caused by capitalistic enterprising zeal, Japan plunged into economic depression again. Through such repeated depressions, there was a gradual formation of the so-called economic dual structure in which traditional industries were maintained by small and medium enterprises or by small businesses while imported industries were maintained by large enterprises.

In the development process of capitalism seen above, the Tokyo Worker Training School and the Worker Training School attached to the Tokyo College of Technology were first established. These were followed by the nationwide establishment of apprentice schools modeled after these worker training schools. Reflecting the insufficient growth of capitalism of the time, these apprentice schools came to be involved with the traditional and imported industries.

III. The Establishment of Apprentice Schools

The Meiji government's policy to protect and nurture imported industries began to show effect from 1887, and the industrial circles developed to the point that low-level technicians who possessed scientific knowledge and skills became necessary. Nevertheless, it cannot be said that the industrial circles, in general, showed a positive interest in the establishment of systematic educational institutions for the training of workers. In a period of such inactive interest in worker training, those who exhorted the importance of promoting vocational education in addition to an educational policy that centered on general education since the implementation of the 1872 School System were Tejima Seiichi, Hamao Arata, Inoue Kowashi, and others. In particular, the first principal of the Tokyo Worker Training School, Tejima Seiichi, is said to be the father of apprentice schools.

Tejima Seiichi published his opinions regarding vocational education in a magazine, *Kyōiku jiron* [Current Views on Education] in 1886. According to the article, he stated:

> The economic development of the Western nations at present is due to their progress in industrial technology. Industrial technology progressed because of the vocational education system. The fact that there is a great difference in national income between En-

> gland and Japan, despite the fact that both are insular and therefore similar geographically, derives from a well-established vocational education system in England while worker training in Japan is not pursued rationally due to our adherence to the old custom of the apprentice system.

He proposed the establishment of apprentice schools as a measure to promote vocational education. The apprentice schools advocated by Tejima were designed to play a role in the Meiji government's policy of increasing production and promoting industry. They were also to contribute to the modernization of traditional industries and the development of imported industries.

At the time of the revision of the 1890 Elementary School Act the term apprentice school first appeared in a legal framework. In this instance, apprentice schools were stipulated to be a type of elementary school. There were no regulations for either the curriculum, or the length of study necessary for actual management. As a result, apprentice schools were not implemented according to this act. As mentioned earlier, due to the establishment of the Worker Apprentice School Annexed to the Tokyo College of Technology in August 1890, apprentice schools which were modeled after this school subsequently came to be founded throughout the country.

The apprentice schools which were legally designated as institutions for primary vocational education by the 1890 Elementary School Act were classified as lower-level technical schools by the Regulations for Apprentice Schools enacted in 1894. Prior to the enactment of these regulations, Tejima Seiichi announced a concrete plan for apprentice schools in *Kyōiku Jiron*, published in 1892. According to his plan, the primary objective of the apprentice schools was to replace traditional apprenticeship and to provide rational worker training by rectifying the shortcomings of the traditional apprentice system. His intention was for apprentice schools to contribute in two ways. First, the modernization of traditional industries would be affected through the establishment of apprentice schools at production sites such as those of lacquerware, ceramicware, and textiles (producing center apprentice schools); second, traditional industries would be promoted indirectly by establishing them in cities with a population of several tens of thousands (urban apprentice schools).

Tejima Seiichi also envisioned three categories of apprentice schools, which he referred to as the first type, the second type, and girls' vocational schools. Apprentice schools already extant should be first-type apprentice schools requiring ordinary elementary school graduation

for admission. The period of study was to be for three years. While the curriculum was designed to center on practical vocational training, subjects such as ethics, reading, composition, calligraphy, arithmetics, drawing, and science were also to be taught. Second-type apprentice schools were designed to accept those who had dropped out of ordinary elementary school; they simultaneously followed ordinary elementary school curriculum together with introductory vocational subjects. As the students became older, they were to pursue specialized vocational training. Second-type apprentice schools thus were designed to combine the ordinary elementary school curriculum with vocational subjects taught in first-type apprentice schools so that vocational education could be provided together with supplementary education. Girls' vocational schools were to be established with the aim of providing them with handicraft, sewing, and other family skills that could later be used to help home finances.

Because the three types of apprentice schools were all full-time day schools, part-time worker continuation schools had to be established separately. Tejima proposed, therefore, that worker continuation schools be established and attached to the elementary schools. The course work was to be completed in three to five years and it was to cover not only the elementary school curriculum but also such subjects as introductory science, industry, and drawing.

According to Tejima's view, the first-type apprentice school seemed to correlate to secondary vocational education, while the second-type apprentice school correlated to primary vocational education. Generally, however, both first- and second-type apprentice schools could not go beyond the level of supplementary primary education; the apprentice schools had to play a role in primary education due to the insufficient number of elementary schools at the time, which left many children without an education. Apprentice schools which had the dual responsibility of both primary education and worker training remained in the unspecialized state of not being able to devote time solely to worker training. For the apprentice schools to escape this unspecialized state and to contribute solely to the modernization of traditional industries, the active financial support of the Meiji government was necessary. Furthermore, due to regional financial difficulties, it was not possible to expect that local governments would come to establish them.

The industrial revolution was attended by demands from 1887 by the industrial sector that top priority be given to modern worker training. In response, the Government Subsidy for Vocational Education Act was enacted in June 1894 to increase the spread of

vocational education. This act, based upon national demand, was aimed at the rapid promotion of vocational education, which had been slowly undertaken. As a result of the promulgation of this act, the various types of vocational schools increased rapidly.

Concurrently with the promulgation of the Government Subsidy for Vocational Education Act, the Regulations for Apprentice Schools were established in July 1894. Prior to the establishment of these regulations, in June 1894, the Ministry of Education invited 21 industrial union members in the suburban districts of Tokyo to hold a consultative committee meeting regarding apprentice schools. The idea behind this consultative committee meeting was to grasp the actual conditions prevailing in the conventional apprentice system and to listen to requests made by the industrial circles. The reaction of the circles shown at the meeting toward the establishment of apprentice schools was negative. Nevertheless, the Ministry of Education decided upon the establishment of the Regulations for Apprentice Schools.

The admission requirements for apprentice schools stipulated, in principle, that students had to be older than 12 years of age and had to have graduated from ordinary elementary school. However, there was a clause which stated that upon obtaining permission from the principal, even those without ordinary elementary school graduation could be enrolled. In the case of the latter, it was specified that the students be taught such ordinary primary educational subjects as reading, calligraphy, and composition. As seen, these regulations incorporated the plans regarding the first- and second-type apprentice school proposed by the Tejima Seiichi. Through these regulations an apprentice school could be established as an annex to either an ordinary or upper elementary school and the period of study would be for more than six months and less than four years. Training could be done in the form of part-time schooling in which classes would be held on Sundays, at night, or for a limited season. Such elasticity regarding the establishment, the period of study, and the time of classes led to the inclusion of part-time worker continuation schools and vocational continuation schools. The schools Tejima had advocated were to be classified with apprentice schools; thus, the demarcation between apprentice schools and vocational continuation schools became ambiguous.

At any rate, even though apprentice schools had to give supplementary elementary education, the national intention revealed by the Regulations for Apprentice Schools was to modernize traditional industries and to provide excellent workers for modern industries introduced from the West. In response to the rapid development of Japanese

Table 2.2. Nationwide Apprentice Schools and Students, 1891–1924

Year	Schools				Students			
	National	Public	Private	Total	National	Public	Private	Total
1891	2	—	—	2	141	—	—	141
1892	2	—	—	2	123	—	—	123
1893	2	—	—	2	94	—	—	94
1894	1	1	2	4	75	61	928	1,064
1895	1	5	4	10	106	246	765	1,117
1896	1	11	5	17	107	859	909	1,875
1897	1	13	4	18	101	1,011	666	1,778
1898	1	17	6	24	103	1,125	297	1,525
1899	1	15	4	20	110	1,237	172	1,519
1900	1	19	3	23	106	1,460	182	1,748
1901	1	23	2	26	143	1,496	32	1,671
1902	1	31	2	34	128	2,144	48	2,320
1903	1	36	1	38	128	2,585	63	2,776
1904	1	39	1	41	116	2,836	50	3,002
1905	1	43	3	47	123	3,210	118	3,451
1906	1	52	5	58	134	4,301	202	4,637
1907	1	70	5	76	147	5,963	196	6,306
1908	1	76	5	82	177	6,551	245	6,973
1909	1	83	4	88	181	6,962	157	7,300
1910	1	100	3	104	186	8,604	189	8,979
1911	1	104	3	108	193	9,661	160	10,014
1912	1	103	4	108	209	10,402	213	10,824
1913	1	108	4	113	208	11,701	240	12,149
1914	1	110	7	118	210	12,847	401	13,458
1915	1	113	7	121	215	13,929	413	14,557
1916	1	122	7	130	238	15,374	351	15,963
1917	1	122	8	131	243	15,630	530	16,403
1918	1	125	10	136	250	16,249	900	17,399
1919	1	117	12	130	244	16,909	1,217	18,370
1920	1	114	11	126	216	15,809	1,082	17,107
1921	1	—	—	1	177	—	—	177
1922	1	—	—	1	129	—	—	129
1923	1	—	—	1	—	—	—	—
1924	—	—	—	—	—	—	—	—

Source: Formulated from annual statistics in Ministry of Education, *Sangyō kyōiku 70 nen shi* [A 70-Year History of Industrial Education], 1956.

capitalism from the latter half of the Meiji period, the emphasis was gradually shifted to the kind of apprentice school which could meet the needs of such imported industries as the heavy and chemical industries. According to the Vocational School Act promulgated in

February 1899, because apprentice schools were designated as a type of technical school they were transformed into schools which would supply workers solely to modern industries.

As seen in Table 2.2, there was a rapid increase in the number of apprentice schools throughout the country from around 1907. Many of the new apprentice schools catered to the needs of modern industries while apprentice schools that catered to traditional industries were gradually overshadowed. Ultimately, the apprentice schools were abolished due to the revision of the Regulations for Technical Schools in 1920. While apprentice schools which corresponded to modern industries were upgraded to technical schools, those which adhered to traditional industries alone were closed.

IV. The Transformation to Technical Schools

The five apprentice schools cited in Chapter 1 as case studies were all founded based on the Regulations for Apprentice Schools established in July 1894. Although these apprentice schools were initially founded by a city, town, village, county, or association, the management of the school—excluding the case of the Sendai City Vocational Apprentice School—was transferred to the prefectures by the end of the Meiji period. These schools were soon upgraded to advanced technical schools in accordance with the Regulations for Technical Schools. Although there was a movement to transfer the Sendai City Vocational Apprentice School to prefectural control in 1900, it was not successful. This school was upgraded to that of an advanced technical school. Apprentice schools were soon being established upon the social basis of such traditional industries as woodwork, lacquerware, ceramicware, dyeing, weaving, and bamboo working. Their establishment was a natural outcome of the objective of the apprentice schools to modernize traditional industries. The majority of the apprentice schools established in the early period were the producing-center apprentice schools established in the center of production sites as advocated by Tejima Seiichi. There was also a small number of urban apprentice schools that were established in cities of over ten thousand people to contribute to the development of domestic industries.

Apprentice schools that were initially established in producing centers were transformed into urban schools concurrently with management transfer to prefectures in the latter half of the Meiji period to the Taishō period. This transformation came about as the educational content was reorganized to meet the needs of modern industry. During the transformation process, the technical school course (advanced

technical school) and the apprentice school course (ordinary technical school) were offered simultaneously within the same school; ultimately, since the apprentice school course was abolished, they all became advanced technical schools. Since the technical school course corresponded to modern industry as the apprentice school course corresponded to traditional industry, the apprentice schools that had been upgraded to advanced technical schools had, in fact, abandoned their role of modernizing traditional industry. The process by which the nature of the apprentice schools changed will now be examined.

The Sendai Vocational Apprentice School founded by Sendai City in 1896 was established from the beginning as an urban apprentice school. Before long, however, a metalwork course was added to the woodwork course. Through upgrading and reorganizing the educational content of both courses, the school established both a technical and an apprentice school course in 1920; the former was upgraded to an advanced technical school. In 1922, the apprentice school course was abolished and, at the same time, the school underwent a complete transformation, becoming a five-year technical school offering four courses on architecture, furniture, machinery, and civil engineering to those who had graduated from six years of ordinary elementary school.

The Aizu Lacquerware Apprentice School founded by Aizu-Wakamatsu City in 1898 was initially a producing-center apprentice school that catered to the traditional lacquer industry. In 1904 the management of the school, together with the Hongō Ceramics Apprentice School (founded in 1895), was transferred to the prefecture, and the Fukushima Prefectural Technical School was established. This school had a dual system offering a newly created weaving and dyeing course in the advanced technical school, and courses on traditional industries such as lacquer and ceramics offered in the ordinary technical school. A course on applied chemistry was added in the Taishō period. As courses on industrial chemistry, machinery, electricity, and architecture were included, the school gradually broke away from the traditional industries.

Like the Aizu Lacquerware Apprentice School, the Seto Ceramics School founded in 1895 was also a producing-center apprentice school. Several years after its founding, the school came to have a dual system: advanced technical schooling which required upper elementary school graduation for admission, and ordinary technical schooling which required ordinary elementary school graduation for admission. This system continued to exist for a while after the school's management was transferred from Seto City to the prefecture in 1934. When the ordinary level technical school was abolished, the school completed

its transformation to that of an actual advanced technical school by creating facilities for ceramics and painting courses.

The Minami-Tsuru Dyeing and Weaving School founded in 1896 was also a producing-center apprentice school which offered a dual curriculum. The first consisted of advanced technical schooling lasting three years and had as its admission requirement graduation from upper elementary school. The second curriculum was ordinary apprentice schooling lasting one year. Subsequently, after the control of the school was transferred to the prefecture as an advanced technical school in 1906, the ordinary technical school was discontinued.

Lastly, the Beppu Technical Apprentice School founded by the Schools' Association was also a producing center. Concurrently with the transfer of control from the association to Beppu town, an architectural course was established. In 1910 the control was transferred to the prefecture, and in 1918 the school established a dual curriculum of advanced technical schooling and ordinary technical schooling. The former course consisted of three courses: general machinery, electrical machinery, and architecture, with a furniture course which took over the line of traditional industries. The furniture course was abolished and ultimately absorbed into the advanced technical school.

As seen by the above, at the time of the founding of apprentice schools, the low-level technical training offered had as its aim the modernization of traditional industries. From the latter half of the Meiji period, however, the schools were gradually transformed so that they could offer the mid-level technical training needed by the modern industries. During this process, there was a change in the quality of apprentice schools from a producing-center type to an urban type, which upgraded the schools from ordinary apprentice schools to advanced apprentice schools. Although there were remnants of the dual system which contained both advanced and ordinary technical schools during the process of upward mobility, this system had disappeared by the end of the Taishō period, leaving only advanced technical schools. Apprentice schools thus completed their historic role in the modernization of traditional industries. The history of apprentice schools thus had a transitional character in that they moved upward to become advanced technical schools.

V. The Implementation of the Vocational Education System

Although apprentice schools had been established on the basis of traditional industries, they soon became so strongly inclined toward

modern industries that, at one stage, they offered a dual system which catered to both the traditional and the modern industries. Ultimately, however, through the elimination of courses which corresponded to the traditional industries, the apprentice schools were transformed to offer a ladder system which catered only to modern industries. Because this process followed that of the apprentice schools, it did not reflect an examination encompassing the total perspective of the Japanese vocational education system from the latter half of the Meiji period onwards. The next section will deal with an outline of the establishment of the vocational education system and examine the historical character of the apprentice schools in a total perspective.

1. Technical Education in the Late 1800s

Technical educational institutions offering courses in modern technology were established after the Meiji Restoration. In 1871, one year before the promulgation of the School System of 1872 established the modern school system, the government founded the School of Engineering for the training of technical bureaucrats. This was the first national technical school in Japan, which provided the following courses: civil engineering, machinery, architecture, telecommunication, chemistry, metallurgy and mining. The Tokyo Kaisei School founded in 1868 was designated as a special school in 1873 in accordance with the School system. This school had a law school, chemistry school, engineering school, arts school, and mining school. In 1877 the Tokyo Kaisei School was renamed the University of Tokyo. In 1885 the schools related to industry became independent of the University and the Technical College was formed with departments of mechanical engineering, civil engineering, mining and metallurgy, and applied chemistry.

The School of Engineering was renamed the College of Engineering in 1877. At the time of the promulgation of the Imperial University Act in 1886, the College of Engineering and the Technical College of the University of Tokyo were amalgamated to create the Tokyo Imperial University, Engineering College. These schools, which had been established in the first half of the Meiji period, were higher educational institutions for training high-grade engineers. As can be seen, school education in the first half of the Meiji period started to develop at both extremes, namely higher educational institutions at the highest level and ordinary primary educational institutions at the lowest level. The development of mid-level schools lagged behind.

The first technical training institute at the secondary level was the manufacturing class established at the Tokyo Kaisei School in 1874.

This manufacturing class was founded on the basis of a proposal made to the Minister of Education by Gotfried Wagner, a Tokyo Kaisei School professor, who stated that it was imperative to train foremen and other technicians for the promotion of industries. This class offered two courses, one in refining and the other in engineering, but was discontinued after three years because the average person at that time did not understand the need for mid-level technical training since insufficient progress had been made in industrial mechanization.

The Tokyo Worker Training School was established in 1881. This school was intent on revising the traditional apprentice system by nurturing workers to acquire modern science and technology. This school not only served as a model for apprentice schools to be later established nationwide but was also put in charge of training teachers for worker training schools. When this school was upgraded to the Tokyo College of Technology in 1890, the Tokyo Higher College of Technology in 1901, and the Tokyo Institute of Technology in 1915, it gradually abandoned its objective of training workers. When the Tokyo Worker Training School was renamed the Tokyo College of Technology in 1890, the Tokyo Worker Apprentice School was opened as its annex school. The Tokyo Worker Apprentice School improved artisan training which used to be based on the traditional apprentice system and became a model school for the apprentice schools to be established throughout the country. Because of the slow progress of the technical educational system in the first half of the Meiji period, higher educational institutions made some gains while secondary technical institutions were underdeveloped. The implementation of secondary technical educational institutions had to be deferred to the latter half of the Meiji period.

2. Implementation of the Vocational Education System

After 1893, when Inoue Kowashi was appointed the Minister of Education, an active vocational educational policy was put forth in Japan. Inoue endeavored to implement a vocational education system through the adoption of the Regulations for Vocational Continuation Schools in 1893. In 1894 the following laws were promulgated: the Government Subsidy for Vocational Education Act, the Regulations for Apprentice Schools, the Regulations for Ordinary Schools of Agriculture, and the Regulations for Technical Teacher Training. The systematization of vocational education corresponded to the development of modern industries in Japan from the 1890s. As a result of this systematization, vocational schools came to be implemented as follows in 1897:

1. *Primary Vocational Schools*

Special courses on agriculture, engineering, and commerce in upper elementary schools; apprentice schools; vocational continuation schools.

2. *Secondary Vocational Schools*

Practical courses in middle schools; practical courses in ordinary middle schools; prefectural agricultural, technical, and commercial schools; ordinary schools attached to universities of agriculture; ordinary schools of agriculture.

3. *Special Vocational Schools*

Sapporo Agricultural School; Tokyo College of Technology; Institute for Technical Teacher Training; Higher Commercial Schools; Merchant Marine Schools.

The promulgation of the Government Subsidy for Vocational Education Act in 1894 encouraged diversified vocational schools to be founded throughout the country. To reorganize and unify these schools, the government promulgated the Vocational School Act in 1899 and established the Regulations for Technical Schools. This act was issued to create comprehensive basic common regulations applicable to all vocational schools.

The Elementary School Act of 1890 designated apprentice schools as a type of elementary school; the Regulations for Apprentice Schools in 1894 stipulated that apprentice schools could be additionally established and attached to elementary schools. The Vocational School Act of 1899 designated apprentice schools as a type of technical school, and the stipulation was again changed by the Regulations for Technical Schools which stated that apprentice schools could be annexed to technical schools. Due to the establishment of the Vocational School Act, apprentice schools exhibited a tendency to move upward gradually from primary technical schools to secondary technical schools. This tendency provided great elasticity, because while technical schools admitted students who had graduated from four-year upper elementary schools, apprentice schools offering studies for more than six months but less than four years admitted students who had finished four-year ordinary elementary schools.

Regarding the admission requirements and the period of studies, apprentice schools were qualitatively different from technical schools even though they were classified as a type of technical school. From the promulgation of the Vocational School Act, technical schools and apprentice schools were jointly established throughout the country and thus schools with a dual system emerged.

The Vocational School Act did not make any stipulation for higher vocational schools. From 1900 onwards such schools as the Osaka

Table 2.3. Courses Offered in Public Technical Schools (%)

Types of Courses	1900	1921	1942
Traditional Industries			
Woodwork	11 (21.6)	41 (17.3)	47 (6.9)
Metalwork	10 (19.6)	17 (7.2)	15 (2.2)
Other crafts	14 (27.5)	28 (11.8)	30 (4.4)
Weaving and dyeing	9 (17.6)	34 (14.4)	56 (8.2)
Ceramics	6 (11.8)	8 (3.4)	10 (1.5)
Modern Industries			
Shipbuilding	1 (1.9)	2 (0.5)	5 (0.7)
Machinery	0	34 (14.4)	186 (27.3)
Architecture	0	30 (12.7)	75 (11.0)
Electricity	0	21 (8.9)	102 (15.0)
Applied chemistry	0	16 (6.8)	76 (11.2)
Civil engineering	0	3 (1.3)	40 (5.9)
Mining and Metallurgy	0	3 (1.3)	26 (3.8)
Aviation	0	0	13 (1.9)
Total	51(100.0)	237(100.0)	681(100.0)
Number of schools	35	87	222

Source: A revised version of Table 3, in Hosoya Toshio, *Gijutsu kyōiku gairon* [An Introduction to Technical Education], University of Tokyo Press, 1978, p. 123.

Higher Commercial School, the Kyūshū Higher Agricultural and Forestry School, the Tokyo Higher College of Technology, and the Osaka Higher College of Technology were established. To cope with such a trend, the Special School Act was enacted in 1903, and higher technical schools came to be established nationwide. Due to the encouragement of the vocational education system, many secondary technical schools and higher technical schools came to be established from the latter half of the Meiji period. At the same time, there were many cases whereby apprentice schools which had gradually broken away from primary technical schools for the training of low-level technicians were being assimilated into secondary technical schools.

Table 2.3 shows the courses offered by public technical schools including apprentice schools. The types of courses offered in 1900 pertained to traditional industries such as woodwork, metalwork, dyeing and weaving, and ceramics. Twenty years later, in 1921, there was a distinct increase in the establishment of such courses as machinery, architecture, and applied chemistry, which corresponded to the modern heavy industrial sector. This tendency was made even more apparent twenty years later in 1942. In the midst of such a trend, the Regulations for Apprentice Schools had been abolished in 1920, and in 1921

all apprentice schools were designated as technical schools. The apprentice schools which had been reorganized in 1894 thus made a qualitative transformation from primary technical schools to secondary technical schools as their emphasis shifted from traditional industries to modern industries.

VI. The Transformation Process of Apprentice Schools

As a matter of convenience, apprentice schools founded in the 14-year period from the establishment of the Regulations for Apprentice Schools in 1894 to about 1907 when the schools became strongly inclined toward modern industry shall be called first-stage apprentice schools, and the apprentice schools founded after 1907 shall be called latter-stage apprentice schools. The transformation process of apprentice schools will be examined through a comparison of both stages.

1. First-Stage Apprentice Schools

The educational policy of the government from 1872 to 1889 was focused upon the spread of elementary education. By 1889 the ordinary normal schools which provided training for elementary teachers had already been founded in every prefecture. Elementary school enrollment exceeded 50% in 1891. The subsequent focus of the government's educational policy was to establish a system of secondary education and vocational education. Nevertheless, there were 3 million children who were not enrolled in elementary school in 1893, and many of them had to help family finances by becoming apprentices to artisans or assistants at merchant houses. The existence of such an extensive number of unenrolled children inevitably compromised vocational education. The vocational continuation schools which were opened in 1893 as part-time schools provided vocational education as well as supplementary elementary education. Moreover, apprentice schools, which were established in 1894 as full-time schools, also played a supplementary role in elementary education. First-stage apprentice schools thus carried out such diversified roles as supplementing compulsory education, the modernization of traditional industries, and the promotion of modern industries.

Most of the apprentice schools founded nationwide from 1894 to 1900 were established in the producing centers for such traditional industries as dyeing and weaving, ceramics, lacquerware, woodwork, metalwork, bamboo working, and paper craft. Various prefectures contributed to the establishment of these schools in cities and towns where the schools were located. It can be said that first-stage appren-

tice schools were started as urban producing centers. But most of the apprentice schools founded from 1901 to 1907 were of rural producing centers. They were established in rural communities by village and county offices as well as by associations. It was during this seven-year period that there was a rapid increase in the number of girls' vocational schools. This rapid increase in girls' vocational schools correlated to the rise of female enrollment in compulsory education.

2. Latter-Stage Apprentice Schools

From about 1907 the government's expectation of apprentice schools modernizing traditional industries abated, and the government placed its hopes in technical schools that correlated to modern industries. As shown in Table 2.5, regarding the average national subsidy per school, technical schools received the most with ¥2,371; compared with ¥730 for apprentice schools, this was a 30% reduction. Table 2.4 also shows that the subsidy given in 1897 to apprentice schools was 54% of that given to technical schools; therefore, the government's expectation of apprentice schools in the initial period was great. There was an increasing number of cases in which apprentice schools became upgraded to technical schools as the government began expecting more of the technical schools and less of the apprentice schools. From 1897 to 1906, there was an eclipse of apprentice schools because while many of the "rural-producing" schools were abolished, the "urban-producing" apprentice schools were upgraded to technical schools. Some rural-producing apprentice schools were upgraded to technical schools; these schools abandoned courses catering to the traditional industries and introduced courses corresponding to modern industries.

The transformation of latter-stage apprentice schools as seen above correlated to a rapid development of the factory industries which occurred from the end of the Meiji period to around World War I. Con-

Table 2.4. Government Subsidies for Vocational Education, 1897 (¥)

Types of School	Subsidized Schools	Total Subsidy	Average Subsidy per School
Technical schools	5	12,400	2,480
Apprentice schools	14	18,740	1,338
Commercial schools	9	11,960	1,298
Agricultural schools	25	20,200	808
Vocational continuation schools	37	9,633	260

Source: Ministry of Education, *Mombushō dai-25 nempō* [Ministry of Education 25th Annual Report], 1897.

Table 2.5. Government Subsidies for Vocational Education, 1906 (¥)

Types of Schools	Subsidized Schools	Total Subsidy	Average Subsidy per School
Technical schools	28	66,400	2,371
Advanced-level merchant marine schools	8	13,900	1,737
Advanced-level agriculture schools	62	94,650	1,526
Advanced-level commercial schools	37	49,800	1,345
Fisheries schools (Regular course)	6	6,400	1,066
Apprentice schools	45	32,800	730
Ordinary-level commercial schools	11	5,400	490
Ordinary-level agricultural schools	67	26,230	390
Fisheries schools (Separate course)	5	1,770	254
Vocational continuation schools	29	7,200	248

Source: Ministry of Education, *Mombushō dai-34 nempō* [Ministry of Education 34th Annual Report], 1906.

cerning the value of the total industrial product there was a tenfold increase in 17 years from ¥780 million in 1908 to ¥7,154 billion in 1926. Even if commodity inflation costs were estimated to have been twofold on the average, there was a radical increase of about fivefold. Together with the development of the factory industries, the number of workers also increased radically. There was an increase in the total number of workers by 1 million in 18 years as the total number of 800,000 workers in 1907 reached 1.8 million in 1925. In relation to this development of Japanese capitalism, apprentice schools were being upgraded to technical schools through the elimination of courses pertaining to the traditional industries. Furthermore, the technical schools placed sole emphasis upon the training of foremen. Unskilled workers who were placed under foremen were mobilized from vocational continuation schools while the training of factory directors was pursued by higher technical colleges. As a result, the system of technical education which corresponded to occupational rank became complete.